Serial No. 08/104,251, filed August 9, 1993, now issued as U.S. Patent No. 6,061,062, which is a continuation of U.S. Patent Application Serial No. 07/811,830, filed December 20, 1991, now abandoned.--

On page 7, after line 5, please add the following paragraph:

--Figure 11 shows a flowchart of a preferred embodiment.--

IN THE CLAIMS:

Please cancel without prejudice claims 17 and 20. Please substitute the following claims for the pending claims with the same number.

1. A method for accessing a broad data field having fine resolution comprising:

selecting a scale to control a range for accessing data within the data field, the scale being under control of a first control element of a graphical user interface;

moving the range to encompass different portions of the data field, a position of the range relative to the data field being under control of a second control element of the graphical user interface; and

changing simultaneously the scale while moving the range over different portions of the data field.

3. The method as defined by Claim 2 wherein the position of the range is controlled by moving the cursor positioning device along a second axis.

4. The method as defined by Claim 2 wherein the position of the range is controlled by moving the cursor positioning device in an axis orthogonal to the first axis.

6. The method as defined by Claim 5 wherein moving the cursor positioning device to the right causes the range to be shifted to the right and moving the cursor positioning device to the left causes the range to be shifted to the left.

7. The method as defined by Claim 6 wherein a particular piece of data can be accessed within the data field having five orders of magnitude.

9. The method as defined by Claim 8 wherein the cursor positioning device is also capable of controlling the position of a cursor of the graphical user interface on a display screen.

10. The method as defined by Claim 9 wherein the scale and the position of the range are capable of being simultaneously controlled by the cursor positioning device after positioning the cursor over an icon and depressing a button.

11. The method as defined by Claim 10 wherein the cursor positioning device is at least one of a mouse, a track ball, a touch tablet, joystick.

12. A method for accessing a particular piece of data within a broad data field having fine resolution comprising:

selectively varying a scale, thereby determining a range, the range spanning a portion of the data field, the scale being under control of a first control element of a graphical user interface;

moving the range relative to the data field, thereby encompassing portions of the data field such that the particular piece of data lies within the range, a position of the range relative to the data field being under control of a second control element of the graphical user interface;

locating a point close to the location of the particular piece of data within the data field using the second control element;

decreasing the scale, thereby increasing the range's resolution, while simultaneously moving the range relative to the data field to keep the point within the range; and

successively repeating said decreasing and said locating, until the particular piece of data is actually accessed.

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13. The method as defined by Claim 12 wherein the scale is controlled by moving a mouse along an axis and the position of the range is controlled by moving the mouse along another axis.

14. The method as defined by Claim 13 wherein the mouse is also capable of controlling the position of a cursor of the graphical user interface on a display screen.

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15. The method as defined by Claim 12 wherein the scale is controlled by moving a trackball along an axis and the position of the range is controlled by moving the trackball along another axis.

B6 cont.

16. An apparatus for accessing a broad data field having fine resolution comprising:

a means for selecting a scale for controlling a range within the data field, the scale being under control of a first control element of a graphical user interface;

a means for moving the range to encompass different portions of the data field, a position of the range relative to the data field being under control of a second control element of the graphical user interface; and

a means for simultaneously selecting the scale while moving the range over different portions of the data field.

18. The apparatus as defined by Claim 16 including a switching means for switching a mouse between controlling a cursor's position on a display screen and controlling the scale and the position of the range.

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19. The apparatus as defined by Claim 18 wherein the scale is controlled by moving the mouse along an axis and the position of the range is controlled by moving the mouse along another axis.

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21. The apparatus as defined by Claim 19 wherein the range is depicted as a timeline.

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22. A method for accessing a data set containing a plurality of items comprising:

selecting a scale of access to the data set according to input from an input device with relation to a first axis of a first degree of freedom of the input device, the scale being under control of a first control element of a graphical user interface; and

selecting a position of access to the data set at the scale according to input from the input device with relation to a second axis of a second degree of freedom of the input device while the first degree of freedom of the input device controls said selecting the scale in the first graphical user interface element, the position being under control of a second control element of the graphical user interface.

B8 cont.

24. The method as defined by Claim 23 wherein the first and the second axes of the input device are capable of being remapped such that the input device controls positioning a cursor of the graphical user interface on a display screen.

25. A method for accessing a particular piece of data within a broad data field having fine resolution comprising:

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selecting a scale wherein the particular piece of data lies within a range which encompasses a continuous portion of the data set, the scale depicting a magnification level of the data field, the scale being controlled by a first degree of freedom of an input device in a first control element of a graphical user interface;

decreasing the scale such that the magnification level is increased;

changing a span of the data field covered by the range, according to the scale selected;

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moving the data field such that the particular piece of data falls within the range, said moving controlled by a second degree of freedom of the input device in a second control element of the graphical user interface while the first degree of freedom of the input device controls the first control element; and

successively repeating said decreasing the scale and said moving the data field, until the particular piece of data is actually accessed.

Please add the following claims.

~~26.~~ A method for accessing a data field in a data processing system, the method comprising:

when the data processing system is in a first mode:

positioning a cursor to locations on a display screen in response to movement of an input device;

receiving a signal to enter into a second mode;

when the data processing system is in the second mode:

remapping control of the input device to control both a scale and a position, the scale and the position specifying a portion of the data field for access;

adjusting the scale according to movement of the input device along a first axis; and

adjusting the position according to movement of the input device along a second axis.

27. A method as in claim 26 wherein in the second mode:

the scale is increased when the input device moves in an upward motion; and

the scale is decreased when the input device moves in a downward motion.

28. A method as in claim 27 wherein in the second mode:

a later portion of the data field is selected when the input device moves to the right; and

an earlier portion of the data field is selected when the input device moves to the left.

B10 Cont.

29. A method as in claim 28 wherein, to enter into the second mode, the signal is received when the cursor is over an icon and when a switch is activated.

30. A method as in claim 29 wherein the input device includes one of:

a) a mouse;

b) a track ball;

c) a touch tablet; and

d) a joystick.

31. A method as in claim 26 further comprising:

receiving input of moving simultaneously the input device in the first and second axes to simultaneously adjust the scale and the position when in the second mode.

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32. A method as in claim 31 wherein the input device is comprised of a mouse and the scale is controlled by moving the mouse in the first axis and the position is controlled by moving the mouse in the second axis.

33. A method as in claim 31 wherein the input device is comprised of a track ball and the scale is controlled by moving the track ball in the first axis and the position is controlled by moving the track ball in the second axis.

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34. A machine readable medium containing executable computer program instructions which when executed by a data processing system cause said system to perform a method for accessing a data field in the data processing system, the method comprising:

when the data processing system is in a first mode:

positioning a cursor to locations on a display screen in response to movement of an input device;

receiving a signal to enter into a second mode;

when the data processing system is in the second mode:

remapping control of the input device to control both a scale and a position, the scale and the position specifying a portion of the data field for access;

adjusting the scale according to movement of the input device along a first axis; and

adjusting the position according to movement of the input device along a second axis.

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35. A medium as in claim 34 wherein in the second mode:
the scale is increased when the input device moves in an upward motion; and
the scale is decreased when the input device moves in a downward motion.

36. A medium as in claim 35 wherein in the second mode:
a later portion of the data field is selected when the input device moves to the right; and
an earlier portion of the data field is selected when the input device moves to the left.

Bio CONT.

37. A medium as in claim 36 wherein, to enter into the second mode, the signal is received when the cursor is over an icon and when a switch is activated.

38. A medium as in claim 37 wherein the input device includes one of:
a) a mouse;
b) a track ball;
c) a touch tablet; and
d) a joystick.

39. A medium as in claim 34 wherein the method further comprises:
receiving input of moving simultaneously the input device in the first and second axes to simultaneously adjust the scale and the position when in the second mode.

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40. A medium as in claim 39 wherein the input device is comprised of a mouse and the scale is controlled by moving the mouse in the first axis and the position is controlled by moving the mouse in the second axis.

41. A medium as in claim 39 wherein the input device is comprised of a track ball and the scale is controlled by moving the track ball in the first axis and the position is controlled by moving the track ball in the second axis.

42. A data processing system to control access to a data field, the system comprising:

means for positioning a cursor to locations on a display screen in response to movement of an input device when the data processing system is in a first mode;

means for receiving a signal to enter into a second mode;

means for remapping control of the input device to control both a scale and a position when the data processing system is in the second mode, the scale and the position specifying a portion of the data field for access;

means for adjusting the scale according to movement of the input device along a first axis when in the second mode; and

means for adjusting the position according to movement of the input device along a second axis when in the second mode.

43. A processing system as in claim 42 wherein in the second mode:

the scale is increased when the input device moves in an upward motion; and

the scale is decreased when the input device moves in a downward motion.

44. A processing system as in claim 43 wherein in the second mode:
a later portion of the data field is selected when the input device moves to the right; and
an earlier portion of the data field is selected when the input device moves to the left.

45. A processing system as in claim 44 wherein, to enter into the second mode, the signal is received when the cursor is over an icon and when a switch is activated.

46. A processing system as in claim 45 wherein the input device includes one of:
a) a mouse;
b) a track ball;
c) a touch tablet; and
d) a joystick.

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47. A processing system as in claim 42 further comprising:
means for receiving input of moving simultaneously the input device in the first and second axes to simultaneously adjust the scale and the position when in the second mode.

48. A processing system as in claim 47 wherein the input device is comprised of a mouse and the scale is controlled by moving the mouse in the first axis and the position is controlled by moving the mouse in the second axis.

49. A processing system as in claim 47 wherein the input device is comprised of a track ball and the scale is controlled by moving the track ball in the first axis and the position is controlled by moving the track ball in the second axis.

50. A method to control a graphical user interface, the method comprising:

receiving a first input which indicates a movement of an input device in a first degree of freedom of the input device while a cursor of the graphical user interface is outside a first region; and

adjusting a first parameter under control of a first user interface element of the graphical user interface according to the first input, the first user interface element being located within the first region.

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51. A method as in claim 50 wherein the first user interface element is controllable by a movement of the input device when the cursor of the graphical user interface is within the first region.

52. A method as in claim 50 further comprising:

receiving a second input which indicates a movement of the input device in a second degree of freedom of the input device; and

adjusting a second parameter under control of a second user interface element of the graphical user interface according to the second input, the second user interface

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element being located within a second region, the second region being outside the first region.

53. A method as in claim 52 wherein the first user interface element is controllable by a movement of the input device when the cursor of the graphical user interface is within the first region; and, wherein the second user interface element is controllable by a movement of the input device when the cursor of the graphical user interface is within the second region.

54. A method as in claim 53 wherein the first user interface element comprises a slider and the second user interface element comprises a timeline.

55. A method to control a graphical user interface, the method comprising:

receiving a first input which indicates a first movement of an input device, the first input comprising:

a first component which indicates a component of the first movement according to a first degree of freedom of the input device, and

a second component which indicates a component of the first movement according to a second degree of freedom of the input device;

adjusting a first parameter under control of a first user interface element of the graphical user interface according to the first component, the first user interface element being located in a first region in the graphical user interface; and

adjusting a second parameter under control of a second user interface element of the graphical user interface according to the second component, the second user interface element being located in a second region in the graphical user interface.

56. A method as in claim 55 wherein the first user interface element is controllable by the input device when a cursor of the graphical user interface is in the first region; and, the second user interface element is controllable by the input device when the cursor of the graphical user interface is in the second region.

57. A method as in claim 56 wherein the first and second regions are not overlapping with each other.

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58. A method as in claim 57 wherein the cursor is not displayed when the first parameter is adjusted according to the first component and the second parameter is adjusted according to the second component.

59. A method as in claim 55 wherein the first and second parameters are independent from each other.

60. A method as in claim 55 further comprising:

determining a dominant one of the first component and the second component;

wherein only one of the first and second parameters is adjusted according to the dominant one of the first component and the second component.

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61. A machine readable medium containing executable computer program instructions which when executed by a data processing system cause said system to perform a method to control a graphical user interface on the data processing system, the method comprising:

receiving a first input which indicates a movement of an input device in a first degree of freedom of the input device while a cursor of the graphical user interface is outside a first region; and

adjusting a first parameter under control of a first user interface element of the graphical user interface according to the first input, the first user interface element being located within the first region.

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62. A medium as in claim 61 wherein the first user interface element is controllable by a movement of the input device when the cursor of the graphical user interface is within the first region.

63. A medium as in claim 61 wherein the method further comprises:

receiving a second input which indicates a movement of the input device in a second degree of freedom of the input device; and

adjusting a second parameter under control of a second user interface element of the graphical user interface according to the second input, the second user interface element being located within a second region, the second region being outside the first region.

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64. A medium as in claim 63 wherein the first user interface element is controllable by a movement of the input device when the cursor of the graphical user interface is within the first region; and, wherein the second user interface element is controllable by a movement of the input device when the cursor of the graphical user interface is within the second region.

65. A medium as in claim 64 wherein the first user interface element comprises a slider and the second user interface element comprises a timeline.

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66. A machine readable medium containing executable computer program instructions which when executed by a data processing system cause said system to perform a method to control a graphical user interface on the data processing system, the method comprising:

receiving a first input which indicates a first movement of an input device, the first input comprising:

a first component which indicates a component of the first movement according to a first degree of freedom of the input device, and

a second component which indicates a component of the first movement according to a second degree of freedom of the input device;

adjusting a first parameter under control of a first user interface element of the graphical user interface according to the first component, the first user interface element being located in a first region in the graphical user interface; and

adjusting a second parameter under control of a second user interface element of the graphical user interface according to the second component, the second user interface element being located in a second region in the graphical user interface.

67. A medium as in claim 66 wherein the first user interface element is controllable by the input device when a cursor of the graphical user interface is in the first region; and, the second user interface element is controllable by the input device when the cursor of the graphical user interface is in the second region.

68. A medium as in claim 67 wherein the first and second regions are not overlapping with each other.

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69. A medium as in claim 68 wherein the cursor is not displayed when the first parameter is adjusted according to the first component and the second parameter is adjusted according to the second component.

70. A medium as in claim 66 wherein the first and second parameters are independent from each other.

71. A medium as in claim 66 wherein the method further comprises:
determining a dominant one of the first component and the second component;
wherein only one of the first and second parameters is adjusted according to the dominant one of the first component and the second component.

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72. A data processing to control a graphical user interface, the data processing system comprising:

means for receiving a first input which indicates a movement of an input device in a first degree of freedom of the input device while a cursor of the graphical user interface is outside a first region; and

means for adjusting a first parameter under control of a first user interface element of the graphical user interface according to the first input, the first user interface element being located within the first region.

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73. A data processing system as in claim 72 wherein the first user interface element is controllable by a movement of the input device when the cursor of the graphical user interface is within the first region.

74. A data processing system as in claim 72 further comprising:

means for receiving a second input which indicates a movement of the input device in a second degree of freedom of the input device; and

means for adjusting a second parameter under control of a second user interface element of the graphical user interface according to the second input, the second user interface element being located within a second region, the second region being outside the first region.

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75. A data processing system as in claim 74 wherein the first user interface element is controllable by a movement of the input device when the cursor of the graphical user interface is within the first region; and, wherein the second user interface element is controllable by a movement of the input device when the cursor of the graphical user interface is within the second region.

76. A data processing system as in claim 75 wherein the first user interface element comprises a slider and the second user interface element comprises a timeline.

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77. A data processing to control a graphical user interface, the data processing system comprising:

means for receiving a first input which indicates a first movement of an input device, the first input comprising:

a first component which indicates a component of the first movement according to a first degree of freedom of the input device, and

a second component which indicates a component of the first movement according to a second degree of freedom of the input device;

means for adjusting a first parameter under control of a first user interface element of the graphical user interface according to the first component, the first user interface element being located in a first region in the graphical user interface; and

means for adjusting a second parameter under control of a second user interface element of the graphical user interface according to the second component, the second

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user interface element being located in a second region in the graphical user interface.

78. A data processing system as in claim 77 wherein the first user interface element is controllable by the input device when a cursor of the graphical user interface is in the first region; and, the second user interface element is controllable by the input device when the cursor of the graphical user interface is in the second region.

79. A data processing system as in claim 78 wherein the first and second regions are not overlapping with each other.

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80. A data processing system as in claim 79 wherein the cursor is not displayed when the first parameter is adjusted according to the first component and the second parameter is adjusted according to the second component.

81. A data processing system as in claim 77 wherein the first and second parameters are independent from each other.

82. A data processing system as in claim 77 further comprising:
means for determining a dominant one of the first component and the second component;
wherein only one of the first and second parameters is adjusted according to the dominant one of the first component and the second component.

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